



Case study

Industry sector:
public sector

Firing up customer service with a managed VPN and multimedia VoIP

A BT-managed converged network has enabled Mid and West Wales Fire and Rescue Service to improve service and meet e-government guidelines while reaping cost and operational benefits

Executive summary

By January 2004, the Mid and West Wales Fire and Rescue Service (MWWFRS) needed to upgrade its data network – a complex mixture of leased line and dial-up connections – and expand its private voice network beyond its two core HQ sites. The organisation needed to address e-government related targets and generally improve its telephone service to the public so that all incoming non-emergency calls were answered in a consistent manner at a central location with all calls being charged at the same rate. This had to be achieved within a limited capital budget and with no increase in operational expenditure and without the need for extra support staff.

BT's solution was a new converged voice over IP (VoIP) network, with all calls coming into a single 0870 number at the Service HQ at Carmarthen. Operators

equipped with screen-based consoles and a browser-based staff directory route calls through a BT-managed virtual private network (BT metroVPN) using BT's MMVoIP (multimedia VoIP) call management system to Cisco IP Phones on desktops. Data communications is provided over the same network with upgraded Cisco LANs at main administrative sites.

Within a few months of the new system's implementation, MWWFRS had achieved all of its declared goals. It is seeing an improved service to the public and a reduction in workload for its IT staff, together with a reduction in phone charges and lower total cost of ownership.

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Communication and Information Systems Manager
Mid and West Wales Fire and Rescue Service

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Marketplace

The Mid and West Wales Fire and Rescue Service (MWWFRS) has a staff of 1,400 serving an area of 4,500 square miles – the largest fire service region in the UK – with 57 fire stations and nine administrative sites organised into six County Commands.

The general public expects to be able to communicate swiftly and efficiently with all parts of a modern public service and, in the UK, emergency services “999” processes and response times have been honed to be among the best in the world. But the same cannot always be said about dealing with the administrative branches of the emergency services, particularly if they are spread over large geographic areas.

Nigel Williams, Communication and Information Systems Manager at MWWFRS, explains: “To improve the delivery of our non-emergency services to the public and also to better comply with e-government guidelines, we really needed to direct non-emergency administrative calls to a new single number facility, where they would all be handled in a consistent manner and charged at the same rate. However, the historical structure of the organisation and our existing network facilities were not conducive to achieving this.”

Business opportunity

In fact, the cost to the public of calling the Service HQ in Carmarthen from different parts of the region varied between local and national rates. Incoming calls could only be transferred between the two core HQ sites – at Carmarthen and Morriston in Swansea – leaving the public with the expensive and time consuming task of re-dialling if their calls landed in the wrong place.

Voice and data traffic between the two HQ sites and the other seven administrative sites was via dial-up and becoming increasingly costly. The two core HQ sites communicated over a Nortel voice network, with a separate leased line-based data network running between them. The other seven administrative sites had separate Norstar phone systems, with data communications via dial-up ISDN and some leased lines.

In addition to improving its service to citizens, the MWWFRS also wanted a complete move away from dial-up communications between its principal sites. The capital cost allocation had been capped at £150,000 but, within this budget, the organisation was determined to present a modern image to the world by employing the latest technology.

One option open to the MWWFRS was to replace the individual PBXs with more modern voice switches, running over a voice network between the sites, and to expand the data network to encompass all sites. That would remove the need for dial-up, but would be inflexible and suffer from high cost of ownership. Under the second option, the organisation could adopt a state-of-the-art converged solution.

Nigel Williams spells it out: “Either way, the new infrastructure would have to deliver voice quality comparable with the existing systems, and not compromise data integrity. We had to preserve our current technology investment as far as possible, with no increase in the operational budget and no increase in support staff. Ideally, the solution would be self-financing.”

BT solution

BT was invited to discuss the Fire Service's communications needs and recommended a converged VoIP (voice over internet protocol) solution based upon a single package of BT services and BT-supplied Cisco Systems hardware and software.

Key within this was to be the introduction of a single 0870 number at Service HQ in Carmarthen for all non-emergency calls throughout the region. The need for separate PBXs at the seven administrative sites would be eliminated, although the existing investment in Nortel PBXs at Carmarthen and Morriston would be leveraged. A Datapulse system, interfaced to the existing Carmarthen PBX, providing automatic call answering and greeting, would route calls to staff equipped with screen-based consoles. These would be interfaced to a browser-based electronic directory, accessible by all staff through the organisation's intranet.

Nigel Williams says: "We chose a BT solution because they had the most comprehensive presence throughout the whole of our operational area, and were able to offer a state-of-the-art Cisco Systems-based architecture within our capital budget."

VoIP-enabled Cisco LANs have been installed at all sites, and each is linked to a BT metroVPN (virtual private network) wide area network, and through to BT's managed MMVoIP (multimedia VoIP) call handling service hosted in Manchester. From this, high quality voice is delivered back via the Cisco LANs to Cisco IP Phones on desktops.

Project management was an intrinsic part of the BT solution and critical to delivery of the project on time and to budget. Nigel Williams comments: "The BT project manager pulled together all the disparate elements into a co-ordinated schedule. For example, cascaded training for the contact centre and support staff as well as delivery, commissioning and de-commissioning of equipment. He also oversaw programming, testing and implementation of the systems as part of the overall service rollout."

The entire system – including day-to-day configuration, maintenance and billing – is managed by BT as part of the package.

Why BT?

- BT has the capability to draw together all the components of a complex bespoke solution, and deliver them in one co-ordinated package
- BT can provide service coverage throughout the UK and especially in areas of low population concentrations
- BT can provide project management expertise and a totally managed service

Results

The MWWFRS, and the public it serves, now enjoys the benefits of an efficient and effective e-enabled citizen-focused communication network.

By Spring 2005 and within just a few months of its implementation, the new system was bringing significant benefits. In terms of improved public service, all incoming calls are now answered consistently and generally within 20 seconds. An automated and bilingual greeting shortens operators' call holding times thereby improving their efficiency and effectiveness. All callers benefit from the same government organisation call rates: it now costs an average of six pence per call at peak times, less at others. Publicity around the upgraded service has raised the profile of the organisation, which has helped it promote public awareness of important Fire Safety issues.

The financial benefits all contribute towards making the improvements self-financing including:

- Reduced maintenance charges: there is much less physical equipment to maintain, with no charges for the new elements during the first year's warranty period
- Reduced IT support staff costs: replacing the Norstar systems with a VoIP architecture means that separate voice skills for those sites are no longer required, and BT's management of the entire architecture releases scarce people resources for value-added tasks

- Reduced PSTN charges: the costly dial-up arrangements for voice or data calls between sites have been eliminated
- Investment in New Services: MWWFRS has been able to fund new initiatives such as the introduction of a bilingual Freephone based Fire Safety advice service.

In addition, there have been improvements in job satisfaction for call handling staff. Automatic answering and personalised greetings removes some of the repetitiousness from their job, and improves caller response times. Nigel Williams says: "Call handling and reception staff love the new system, it means they don't have to keep on repeating the same old greeting and introductory script – which can become boring – so they get to the interesting part of the calls faster."

In technological terms, using the data network for voice avoided the need to replace the voice network cabling and has future proofed the Service's voice and data systems and provided it with a clear migration path to ubiquitous VoIP. Ongoing developments, already underway between the Service's IT staff and BT, will see interface of the Datapulse directory service to the MMVoIP platform – ultimately making it directly available to all Cisco IP Phone users too.

Nigel Williams concludes: "We are already witnessing operational benefits, both in terms of a more responsive service to the public and a reduced workload for in-house staff. The return on investment is there, too, in financial terms with phone charge reductions and lower total cost of ownership."

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Technology blueprint

Under the old system, the voice needs at MWWFRS were being met by BT-maintained Nortel Meridian Option 11s at the two core HQ sites, with smaller Norstar modular telephone systems at the other administrative sites. Cisco Systems networking hardware supported data transmission between the two HQ sites, over a 2Mbps leased line, with ISDN dial-up to the other sites.

Located at their HQ in Carmarthen, new screen-based operator consoles were supplied by Datapulse, together with various proprietary operator service software modules covering call answering, messaging, and routing, and the browser-based telephone directory. BT's MMVoIP telephone service is hosted in Manchester, utilising Cisco CallManager, configured for multi-location, multi-customer service. The Meridian Option 11 telephone switches,

retained to serve the 120 extensions at Carmarthen and the 80 extensions at Swansea, are interfaced through BT VoIP Port to the IP platform, with a Digital Private Network Signalling System (DPNSS) voice link.

Two models from the Cisco IP Phone range were selected to meet different user requirements. As these are connected to the data network, the need to replace the existing voice network cabling was avoided. All the administrative sites have fixed links through a port on a Cisco Catalyst 5500 switch into the BT metroVPN: two 2Mbps links at Carmarthen, a single 2Mbps link at Swansea and three other sites, and 256kbps links at the remaining four VoIP sites. Also, three of the operational sites have 256kbps ADSL links for data only.

Main BT products & services

- BT MMVoIP converged voice call management service
- BT metroVPN managed regional VPN IP network service
- BT VoIP Port interfacing calls end-to-end between the IP network and legacy systems
- Cisco Catalyst switching platform and Cisco IP Phones



Offices worldwide

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